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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* GIN WU<sup>1</sup>

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Appeal 2009-1101  
Application 10/662,744  
Technology Center 3700

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Decided:<sup>2</sup> February 27, 2009

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Before JAMES T. MOORE, *Vice Chief Administrative Patent Judge*, and  
JAMISON LEE and SALLY MEDLEY, *Administrative Patent Judges*.

MOORE, *Vice Chief Administrative Patent Judge*.

DECISION ON APPEAL

1

2 STATEMENT OF THE CASE

3 The Appellant appeals under 35 U.S.C. § 134 (2002) from a final  
4 rejection of claims 14-23.<sup>3</sup> We have jurisdiction under 35 U.S.C. § 6(b)  
5 (2002).

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<sup>1</sup> The real party in interest is Pro-Dex, Inc. (App. Br. 2).

<sup>2</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 CFR § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from Mail Date (paper delivery) or Notification Date (electronic delivery).

<sup>3</sup> Claims 1-13 and 24 have been canceled. (App. Br. 2).

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1        The Appellant's claims are directed to a drill bit for drilling hard  
2 tissue and injecting medication and to a method of using the drill bit to inject  
3 a substance into a bone.

4        Claim 14 is the only independent claim in the application. The  
5 Appellant argues claim 14 as the representative claim for the anticipation  
6 rejections. The Appellant separately argues dependent claim 16 as the  
7 representative claim for the obviousness rejection. Accordingly, the  
8 remaining claims rejected under 35 U.S.C. § 102(b) stand or fall with claim  
9 14. Similarly, the claims rejected under 35 U.S.C. § 103(a) stand or falls  
10 with claim 16.

11        Claim 14 reads as follows:

12        14. A drill bit for drilling hard tissue and injecting medication  
13 comprising:

14            a shaft having a proximal end with a first opening, a  
15            distal end with a second opening and a beveled  
16            cutting surface;  
17            a lumen inside the shaft that extends between first and  
18            second openings, and that receives debris entering the  
19            first opening as a result of operation of the cutting  
20            surface;  
21            an open notch disposed in the shaft, and having a length  
22            greater than a diameter of the lumen; and  
23            wherein an overall length from a distal tip of the cutting  
24            surface to a proximal end of the open notch is greater  
25            than a thickness of the hard tissue.

26        Claim 16 reads as follows:

28        16. A drill bit of claim 14, wherein the overall length is  
29            about 0.10 to 0.125 inches.

30        31        (App. Br. 12, Claims Appendix).

1        Figures 2 and 3a from the Application, reproduced below,  
2        illustrate one embodiment of the claimed drill bit. (Specification pp.  
3        6:29-7:2).

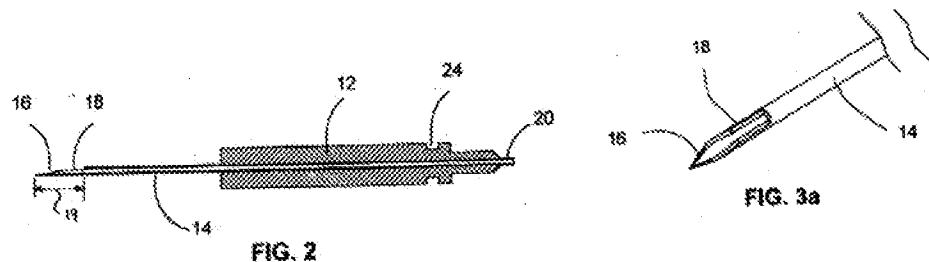


FIG. 2

FIG. 3a

10        {Figure 2 illustrates a longitudinal section of the drill bit of the  
11        invention. Figure 3a illustrates an enlarged perspective of the beveled  
12        tip and extended slot of the drill bit of the invention. (Id.).}

#### THE EVIDENCE

16        The Examiner relies upon the following as evidence in support of the  
17        rejections:

Shaw	5,261,818	Nov. 16, 1993
De Santis	5,560,373	Oct. 01, 1996

#### THE REJECTIONS

23        The following rejections are before us for review:

24        1.        Claims 14, 15, 17, 18, 22 and 23 stand rejected under 35 U.S.C.

25        § 102(b) as being anticipated by De Santis.

26        2.        Claims 14, 15, 17, 19 and 21 stand rejected under 35 U.S.C. §

27        102(b) as being anticipated by Shaw.

28        3.        Claims 16 and 20 stand rejected under 35 U.S.C. § 103(a) as

29        being obvious over Shaw.

30        We AFFIRM.

1 ISSUES

2 Has the Appellant established that the Examiner erred in determining  
3 that the prior art anticipated each limitation of the claimed drill bit and  
4 method for its use?

5 Has the Appellant established that the Examiner erred in determining  
6 that it would have been obvious to one of ordinary skill in the art at the time  
7 the invention was made to modify a known drill bit by selecting an overall  
8 length of about 0.10 to 0.125 inches?

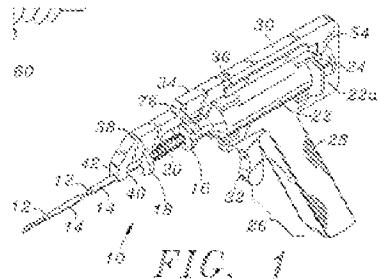
9 FINDINGS OF FACT

10 The record supports the following findings of fact by a preponderance  
11 of the evidence.

12 1. De Santis describes a needle core biopsy instrument with a  
13 durable or disposable cannula assembly. (De Santis Title).

14 2. De Santis describes that the instrument is designed to extract a  
15 tissue sample via needle aspiration. (Id. 1:16-18).

16 3. De Santis figures 1 and 7 are reproduced below:



1        4. De Santis describes that the instrument comprises a first biopsy  
2 cannula 12 (shaft) that is coaxially mounted within the second cutting  
3 cannula 14, each with proximal and distal ends. (Id. 7:14-18).

4        5. De Santis also describes that the first cannula 12 has a hollowed-  
5 out biopsy reservoir 46 (notch and site of second opening) formed  
6 proximally of the beveled cutting tip 44. (Id. 7:32-34).

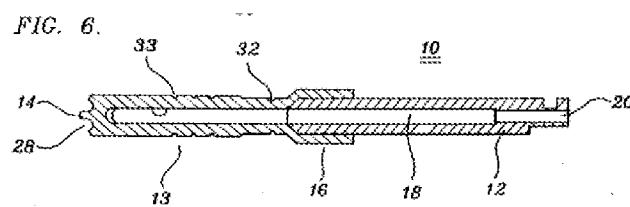
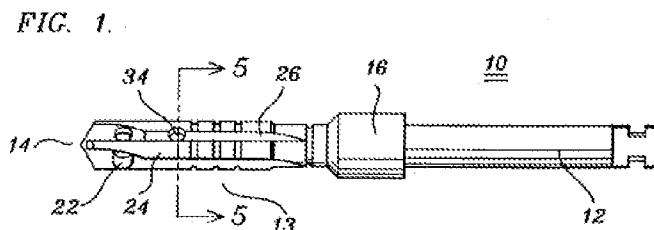
7        6. De Santis describes that at the rear portion of the biopsy reservoir  
8 46 is a lumen or channel 13 (lumen and site of first opening) that runs the  
9 length of the first cannula 12 and allows the biopsy reservoir to establish  
10 fluid communication with a conventional syringe. (De Santis 7:42-45).

11        7. De Santis describes that syringe 22 generates a vacuum force to  
12 draw and isolate extracted tissue. (Id. 7:42-50).

13        8. Shaw describes a multi-fluted dental irrigation drill. (Shaw Title).

14        9. Shaw describes that the dental drill, also known as a bit, is  
15 designed to create “channels in the human jawbone prior to the insertion of  
16 an implant or post upon which a dental structure such as a bridge is to be  
17 placed.” (Id. 1:5-10; 57-60).

18        10. Shaw figures 1 and 6 are reproduced below:



1 {Figure 1 shows 6 shows an axial elevational view and Figure 6 shows an  
2 axial cross-sectional view of the dental drill of the invention. (Id. 2:9-21).}  
3

4 11. Shaw describes that the drill comprises a cutting portion 13 (shaft)  
5 having a working tip 14 (cutting surface). (Id. 2:25-30).

6 12. Shaw also describes that an irrigation channel 18 (lumen) runs the  
7 entire axial length of the drill. (Id. 2:32-34).

8 13. Shaw describes irrigation channel outlets 22 (second opening), 26  
9 (open notch), and 34 (first opening). (Id. 2:61-64).

10 PRINCIPLES OF LAW

11 A prior art apparatus having the same structure as a claimed apparatus  
12 renders a claimed apparatus unpatentable under Section 102 as long as it is  
13 capable of performing the intended use. *In re Yanush*, 477 F.2d 958, 959  
14 (CCPA 1973).

15 ANALYSIS

16 I. The Rejection of Claims 14, 15, 17, 18, 22 and 23 under 35 U.S.C.  
17 § 102(b) as being anticipated by De Santis.

18 Claims 14, 15, 17, 18, 22 and 23 stand rejected under 35 U.S.C. §  
19 102(b) as being anticipated by De Santis. Specifically, the Examiner found  
20 that “De Santis teaches a drill bit with a shaft (12), a first opening (distal end  
21 of 13), a second opening (at the notch), a lumen (13), and a notch (46).”  
22 (Final Rejection, Nov. 8, 2007, p. 2) (citing De Santis Fig. 7). The Examiner  
23 also found that the shaft (12) is disposed in the hub. (Id.) (citing De Santis  
24 Fig. 1).

25 The Appellant asserts that the Examiner erred in rejecting claim 14  
26 because De Santis fails to teach a drill bit “wherein an overall length from a

1 distal tip of the cutting surface to a proximal end of the open notch is greater  
2 than a thickness of the hard tissue,” as claimed. (App. Br. 6). According to  
3 the Appellant, “De Santis teaches the exact opposite” by describing a drill  
4 bit designed “to extract a sample of tissue.” (Id.). Specifically, the  
5 Appellant asserts that De Santis’ drill bit “must be less than the thickness of  
6 the hard tissue” for the tissue biopsy to be drawn into its biopsy reservoir 46.  
7 (Id. 7; Reply 2) (emphasis in original). The Appellant also asserts that De  
8 Santis “must be used in tissue where the vacuum force can draw the cut  
9 tissue into the biopsy reservoir.” (Reply 2) (citing De Santis 10:10-15).

10 This argument is not persuasive.

11 Initially, we look to the claimed subject matter.

12 14. A drill bit for drilling hard tissue and injecting medication  
13 comprising:

14 a shaft having a proximal end with a first opening, a  
15 distal end with a second opening and a beveled  
16 cutting surface;  
17 a lumen inside the shaft that extends between first and  
18 second openings, and that receives debris entering the  
19 first opening as a result of operation of the cutting  
20 surface;  
21 an open notch disposed in the shaft, and having a length  
22 greater than a diameter of the lumen; and  
23 wherein an overall length from a distal tip of the cutting  
24 surface to a proximal end of the open notch is greater  
25 than a thickness of the hard tissue. (Br. App’x).

26  
27 The claim limitation describing “an overall length” by relating it to “a  
28 thickness of the hard tissue” is an expression of intended use and not a real  
29 limitation to an apparatus claim, as the Examiner stated. (Answer p. 4).

30 Note also that the claim is not drawn to a method including a specific step of

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1 applying the drill bit to tissue of a certain relative thickness. More  
2 specifically, the claimed length does not require a particular thickness of  
3 tissue or penetration thereof. The burden is upon the Appellant to draft  
4 claims clearly setting out limitations.

5 As written, the claimed drill bit may be used in any hard tissue,  
6 including, e.g., thin bones of a nose or an ear. (Id.). We see no error in the  
7 finding by the Examiner that the drill bit described by De Santis may be  
8 used in such a thin tissue and punch all the way through the bone and collect  
9 a sample. (Id. 5). Consequently, we do not find that Appellant has  
10 established that De Santis' drill bit must be less than the thickness of the  
11 hard tissue to perform its extraction function.

12 Further, we note that De Santis describes that its device may use a  
13 vacuum force (from the use of a syringe) to draw the cut tissue into the  
14 biopsy reservoir, as the Appellant asserts in the Reply. However, again, De  
15 Santis does not require that such a tissue must be thicker than the drill bit.  
16 De Santis does not exclude the use of its drill bit on thin bones, and the  
17 Appellant has not established otherwise with persuasive evidence.  
18 Therefore, we do not find that the Appellant has established error on the part  
19 of the Examiner.

20 The Appellant additionally asserts that De Santis does not anticipate  
21 claim 14 because "the drill bit of De Santis is not capable of performing the  
22 intended use of claim 14." (App. Br. 7). According to the Appellant, claim  
23 14 recites that the drill bit is designed to inject medication, which is  
24 "completely antithetical" to De Santis' design to extract tissue. (Id.; Reply  
25 2-3). Specifically, the Appellant asserts that "[i]f the prior art structure of

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1 De Santis is used, the extended slot 13 would be clogged with tissue and  
2 injecting medication would be extremely difficult if not impossible.” (App.  
3 Br. 7). Further, the Appellant asserts that satisfying this limitation would  
4 cause the device of De Santis to fail to satisfy another limitation, i.e., that the  
5 lumen “receives debris entering the first opening. . . .” (Reply 2-3).

6 This argument is also not persuasive.

7 As the Examiner stated, claim 14 does not recite a step of injecting  
8 medication. (Answer 5). Rather, the preamble of claim 14 recites “A drill  
9 bit for drilling hard tissue and injecting medication comprising. . . .” (Claim  
10 14). Therefore, De Santis anticipates if it is capable of injecting medication.  
11 (See Answer 5).

12 The lumen 13 of the De Santis drill bit extends from a syringe 22 to  
13 the distal end of the needle. As the Examiner stated, “[t]he open lumen  
14 coupled to a syringe indicates that the device is capable of injecting a  
15 medication.” (Id. 5). A prior art apparatus having the same structure as a  
16 claimed apparatus renders a claimed apparatus unpatentable under Section  
17 102 as long as it is capable of performing the intended use. *In re Yanush*,  
18 477 F.2d 958, 959 (CCPA 1973).

19 Further, to the extent that the Appellant asserts that the De Santis  
20 device may not be able to drill and receive debris while *simultaneously*  
21 injecting medicine, such a limitation or intended use is not recited in the  
22 claim.

23 Finally, we note that the Appellant’s contention is attorney argument,  
24 which is not evidence. There is no persuasive evidence submitted that the

1 De Santis tip, when engaged in tissue of a thickness, could not function to  
2 inject medicine.

3 Therefore, we do not find that the Appellant has established that the  
4 Examiner erred in rejecting the claims for being anticipated by De Santis.

5 II. The Rejection of Claims 14, 15, 17, 19 and 21 under 35 U.S.C. §  
6 102(b) as being anticipated by Shaw.

7 Claims 14, 15, 17, 19 and 21 stand rejected under 35 U.S.C. § 102(b)  
8 as being anticipated by Shaw. Specifically, the Examiner found that Shaw  
9 teaches a shaft (13) with a cutting surface (14), a lumen (18), with first (34)  
10 and second (22) openings and an open notch (26). (Final Rejection, p. 2)  
11 (citing Shaw, *e.g.*, Figs. 1 and 6). The Examiner also found that Shaw  
12 describes a method of drilling through bone. (Id.) (citing Shaw Summary of  
13 Invention).

14 The Appellant challenges the Examiner's rejection by asserting that  
15 Shaw does not describe the open notches of claim 14. Specifically, the  
16 Appellant asserts that contrary to the Examiner's finding, Shaw's "co-axial  
17 channels 26 can not be equated with the open notches of claim 14. . ." (App. Br. 7-8). The Appellant asserts that the application describes an open  
19 notch as "a small hole through the wall of the hollow drill" and that Shaw's  
20 channels are not holes through the wall, but are instead "grooves that are  
21 carved into the sides of the drill." (Id. 8; Reply 4).

22 This argument is not persuasive. While we agree with the Appellant's  
23 position that "a small hole through the wall of the hollow drill" defines the  
24 open notch of claim 14, we do not find that the Appellant has distinguished  
25 the recited open notch from the channels disclosed by Shaw.

1        In particular, the Appellant has not established that a groove or  
2 channel in a wall is not “a hole through the wall,” as used by the Appellant.  
3 In other words, as used in the application, “a hole through the wall” is not  
4 described as or equated to a hole “punched” through the wall. For example,  
5 referring to Figure 3a of the application, the “hole through the wall,” i.e.,  
6 open notch 18, is illustrated as a carved out portion of the drill bit wall.  
7 (Specification, Fig. 3a). Similarly, Figure 1 of Shaw illustrates channel 26  
8 as a carved out portion of the wall of the drill bit. (See Shaw Fig. 1, *see also*  
9 Figs. 3-5; Answer 5).

10       Therefore, we find that Shaw’s channel 26 illustrates an open notch,  
11 as recited in claim 14, and as defined by the application. Consequently, we  
12 do not find that the Appellant has established that the Examiner erred in  
13 finding that Shaw anticipates claim 14.

14       Next the Appellant challenges the rejection of claim 14 by asserting  
15 that “Shaw fails to teach, suggest, or motivate ‘an overall length from a  
16 distal tip of the cutting surface to a proximal end of the open notch is greater  
17 than the thickness of the hard tissue.’” (App. Br. 8) (emphasis added).  
18 According to the Appellant, “the distance from the distal tip of the cutting  
19 surface to the proximal end of channel outlets 22 is less than the thickness of  
20 the hard tissue (the tooth) that Shaw is designed to drill.” (Id.).

21       This argument is not persuasive as, again, it is attorney argument and  
22 not persuasive evidence. Further, as we discussed, *supra*, the claim  
23 limitation reciting “an overall length” is an intended use limitation. As  
24 claimed, the drill bit may be used in any hard tissue, including thin tissues.  
25 (Id.). The drill bit described by Shaw may also be used in hard tissue that is

1 thin (e.g., dental tissue in children or small animals) where the drill bit has  
2 “an overall length from a distal tip of the cutting surface to a proximal end of  
3 the open notch is greater than a thickness of the hard tissue,” as claimed.  
4 Therefore, we do not find that Appellant has established that the Shaw drill  
5 bit must be “less than the thickness of the hard tissue.” Consequently, we do  
6 not find that the Appellant has established error on the part of the Examiner.

7 The Appellant also challenges the rejection of claim 14 by asserting  
8 that Shaw fails to disclose “a lumen inside the shaft that extends between  
9 first and second openings,” as recited in the claim. (App. Br. 8). The  
10 Appellant acknowledges that Shaw describes a shaft 13 with a lumen 18  
11 having a first opening 34 and a second opening 22, where lumen 18 connects  
12 to the second opening 22. (Id.). However, the Appellant asserts that Shaw’s  
13 “lumen 18 fails to connect second opening 22 to first opening 34.” (Id.).  
14 According to the Appellant, Shaw only describes that first opening 34 is  
15 located in alternating channels. (Id. 8-9) (citing Shaw 2:64-65).

16 Similarly, the Appellant asserts that “Shaw’s lumen fails to receives  
17 [sic] debris entering the first opening as a result of operation of the cutting  
18 surface as recited in Claim 14.” (Id. 9). According to the Appellant, Shaw  
19 does not “connect lumen 18 with first opening 34,” and therefore debris that  
20 may enter the first opening 34 does not enter the lumen 18, as required by  
21 claim 14. (Id.).

22 This argument is also unconvincing. As the Examiner stated, the  
23 Appellant’s argument confuses “channel” (which is notch 26) with “lumen.”  
24 (Answer 6). Shaw teaches only one lumen, illustrated as structure 18 in Fig.  
25 6. (Shaw Fig. 6). Shaw describes that structure 18 runs the entire axial

1 length of the drill. (Id. 2:32-34). Shaw also describes that the structure 18  
2 has outlets, i.e., openings 22 and 34, along its length. (Id.). Thus, we find  
3 that Shaw's structure 18 is a lumen that connects to and extends between  
4 first 34 and second 22 openings, and that receives debris entering the first  
5 opening, so as to anticipate the claimed limitation.

6 Consequently, we do not find that the Appellant has established error  
7 with the Examiner's anticipation rejection of the claims over Shaw.

8 III. The Rejection of Claims 16 and 20 under 35 U.S.C. § 103(a) as  
9 being obvious over Shaw.

10 Claims 16 and 20 stand rejected under 35 U.S.C. § 103(a) as being  
11 obvious over Shaw. The Examiner further found that Shaw describes the  
12 entire length of the disclosed drill is typically 20-25 mm (0.78-0.98 inches).  
13 (Final Rejection, p. 3; Shaw 3:10-11). The Examiner also found that Shaw's  
14 notches do not extend the entire length of the drill and appear to extend  
15 roughly 1/4 to 1/3 the length of the shaft, i.e., about 0.19 inches, which the  
16 Examiner equates to "about 0.1-0.125 inches." (Id.). Additionally, the  
17 Examiner found that Shaw describes that the drill bit is intended for use in a  
18 human mouth. (Id.). Therefore, the Examiner determined that a skilled  
19 artisan would have understood that the bit must meet certain dimensional  
20 limits to be functional. (Id.).

21 The Appellant challenges the Examiner's rejection asserting that  
22 dependent claims 16 and 20 are not obvious in view of Shaw for the same  
23 reasons discussed regarding the anticipation rejections over Shaw. (App. Br.  
24 9). We do not find this argument persuasive for the same reasons discussed  
25 *supra*.

1           Additionally, regarding claim 16, the Appellant asserts that Shaw does  
2 not teach or suggest that “the overall length [from the distal tip of the  
3 cutting surface to a proximal end of the open notch] is about 0.10 to 0.125,”  
4 as recited in the claim. (App. Br. 9). Specifically, the Appellant asserts that  
5 0.19 is not an accurate estimation. (Id. 10). Rather, according to the  
6 Appellant, “Even assuming the length of the drill being the smallest 20 mm,  
7 that Shaw’s specification discloses, the length of channel 22 would be 0.30  
8 inches,” i.e., 5/13 of this length. (Id.) (citing to Fig. 1 for assertion that  
9 channel is 5/13 of drill length). The Appellant also asserts that neither 0.19  
10 nor 0.30 is “about 0.10 to 0.125 inches.” (Id.) (citing *In re Preda*, 401 F.2d  
11 825, 826 (CCPA 1968)).

12           We are not persuaded by the Appellant’s arguments. To begin, Shaw  
13 does not limit the smallest length of its drill to 20mm. Rather, Shaw states,  
14 “The entire length of the drill is typically about 20 to 25 millimeters.”  
15 (Shaw 3:10-11). Thus, Shaw’s drill may have a length outside the typical  
16 range, including lengths shorter than 20 mm that (according to the  
17 Appellant’s 5/13 assertion) provides for an overall length from the distal tip  
18 of the cutting surface to the proximal end of the open notch that is “about  
19 0.10 to 0.125 inches,” as claimed.

20           Moreover, we are not persuaded that an overall length of 0.19 inches,  
21 the Examiner estimate from Shaw’s disclosure, is not “about 0.10 to 0.125  
22 inches.” The Appellant references *In re Preda* to support the assertion that  
23 “[a]t most, case law supports a difference of 8% . . .” (App. Br. 10).  
24 However, *In re Preda* discusses an anticipation rejection and not an  
25 obviousness rejection. Further, we do not find that *In re Preda* limits the

1 construction of “about” in terms of a recited range to 8%. A section 103(a)  
2 analysis requires a determination whether the recited range would have been  
3 obvious to a person of ordinary skill in the art at the time of the invention.  
4 The Examiner found that Shaw’s device was designed for use in mouth with  
5 “certain inherent limitations that are required for maneuverability and ease  
6 of use.” (Answer 6). According to the Examiner, selecting the length of the  
7 notch is “within the skill of an ordinary worker in the art to optimize the  
8 function of the device.” (Id., *See also, Application of Boesch*, 617 F.2d 272,  
9 276 (CCPA 1980)(discovery of an optimum value is ordinarily within the  
10 skill of the art)). We agree with the Examiner.

11       Consequently, the Appellant has not established that the Examiner  
12 erred in determining that a skilled artisan would have found the claimed  
13 range obvious over Shaw’s disclosure and in view of the ordinary skill in the  
14 art of drill bits and dentistry.

15       In the Reply, the Appellant challenges the Examiner’s finding that  
16 Shaw’s device has inherent limitations to be useful in the mouth.  
17 Specifically, the Appellant asserts that this finding is inconsistent with  
18 Shaw’s disclosure that the drill bit must have a length of at least 12 mm  
19 because the reference states that the last serration is at least 12 mm from the  
20 tip. (Reply 5, citing Shaw 2:65-3:1). Additionally, the Appellant asserts  
21 that a skilled artisan would not attempt to create drill bit for jawbone that is  
22 only 0.10 to 0.125 inches long because it “would not be long enough to carry  
23 our normal dental operations.” (Reply 5).

24       This argument is also not persuasive. Again, the Appellant is  
25 presenting arguments of counsel in place of persuasive evidence. Shaw

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1 discloses a drill bit having a length of at least 12 mm. Such a disclosure is  
2 not inconsistent with the Examiner's finding, nor does it support the  
3 Appellant's assertion that it would not have been obvious to a skilled artisan  
4 to select a length "about 0.10 to 0.125 inches," as recited in the claim. The  
5 Appellant's assertion, thus, is merely attorney argument and is not  
6 persuasive evidence of error.

7 Accordingly, we affirm the Examiner's rejections.

#### 8 CONCLUSION OF LAW

9 On the record before us, the Appellants have not shown error on the  
10 part of the Examiner. The prior art anticipated each limitation of the  
11 claimed drill bit and method for its use. Additionally, it would have been  
12 obvious to one of ordinary skill in the art at the time the invention was made  
13 to modify a known drill bit by selecting an overall length of about 0.10 to  
14 0.125 inches.

#### 15 DECISION

16 The Rejection of claims 14, 15, 17, 18, 22 and 23 under 35 U.S.C. §  
17 102(b) as being anticipated by De Santis is AFFIRMED.

18 The Rejection of claims 14, 15, 17, 19 and 21 under 35 U.S.C. §  
19 102(b) as being anticipated by Shaw is AFFIRMED.

20 The Rejection of claims 16 and 20 under 35 U.S.C. § 103(a) as being  
21 unpatentable over Shaw is AFFIRMED.

22 No time period for taking any subsequent action in connection with  
23 this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2006).

24

25 **AFFIRMED**

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1 Rvb

2

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